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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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|-----------------|-------------|----------------------|---------------------|------------------|

09/828,271

04/05/2001

Vijayan Rajan

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10/06/2006

NETWORK APPLIANCE/BLAKELY
12400 WILSHIRE BLVD
SEVENTH FLOOR
LOS ANGELES, CA 90025-1030

EXAMINER

VO, LILIAN

ART UNIT

PAPER NUMBER

2195

DATE MAILED: 10/06/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|------------------------|---------------------|--|
| Office Action Summary | Application No. | Applicant(s) | |
| | 09/828,271 | RAJAN ET AL. | |
| | Examiner | Art Unit | |
| | Lilian Vo | 2195 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 July 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 - 24 and 26 - 29 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 - 24 and 26 - 29 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>7/25/06</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Claims 1 – 24 and 26 - 29 are pending. Claim 25 has been cancelled.
2. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 7/25/06 has been entered.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.
4. Claims 1 – 9, 11 – 15, 17 – 21, 23, 24 and 26 - 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lewis (US 6,378,066).
5. Regarding **claim 1**, Lewis discloses a method including:

scheduling tasks from a set of tasks for running on a plurality of processors, each processor having access to a shared resource (figs. 8, 9, 10A and 10B), wherein each task of the set of tasks is associated with one of a plurality of scheduling domains, at least one of the

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scheduling domains being associated with at least two tasks of the set of tasks (col. 3, line 51 – col. 4, line 7: each dependency indicates a relationship between two blocks and requires the portion of the program associated with the one of the two blocks to be executed before the portion of the program associated with the other block. Col. 12 lines 15 – 35: dependency is fixed and Fig. 12A) and a resource shared by the at least two tasks (figs. 8, 9, 10A and 10B, col. 5 lines 50 – 55: “...for each block, the developer specifies the program code to be executed on the values within the block as any dependency between the block and other blocks in the region. Blocks with the same program code are said to share the same ‘state’”. Col. 12 lines 24 – 46: a set of blocks 1204 (or state)); and wherein tasks within each of the scheduling domains can be run on different processors but are prohibited from running concurrently even if run on different processors (col. 12 lines 15 – 35 and fig. 12A); and

allowing a plurality of tasks of the set of tasks to run concurrently in different scheduling domains (col. 3, line 51 – col. 4, line 7: any portion of the program/function associated with a block that is not depending on a result of other block can be executed in parallel. Col. 5, lines 54 – 57, col. 10, lines 14 - 17).

With respect to scheduling domains, Lewis discloses the “dependencies among the blocks are specified by the user. Each dependency indicates a relationship between two blocks and requires the portion of the program associated with one of the two blocks to be executed before the portion of the program associated with the other block” (col. 3 line 51 – col. 4 line 7. Col. 12 lines 15 – 35). With respect to the limitation in which tasks within each scheduling domain are prohibited from running concurrently, Lewis discloses that if a thread determines that a selected block is dependent upon the execution of program code with respect to other block(s) that

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has/have not been executed, the thread skips the selected block (col. 3, line 51 – col. 4, line 7, col. 10, lines 10 –14, fig. 9). Therefore, it would have been obvious to one of an ordinary skill in the art that Lewis's system does not execute function(s) among the block(s) concurrently to satisfy the dependency relationship between the blocks (col. 3, lines 51 – 55).

6. Regarding **claim 2**, Lewis discloses the step of changing said association for at least one task from a first to a second scheduling domain (Col. 12 lines 15 – 46).

7. Regarding **claim 3**, Lewis discloses the step of selecting for running at least one task associated with a plurality of said scheduling domains (col. 5, line 65 – col. 6, line 6).

8. Regarding **claim 4**, with respect to the limitation of selecting for running at least one task not associated with any one of said scheduling domains, it would have been obvious to one of an ordinary skill in the art that Lewis' system is also running/executing system related functions/tasks which is not associated with any one of the blocks in order to keep the system properly function and avoid wasting of computing resource.

9. **Claims 5 – 9, 11 – 15, 17 – 21, 23, 24 and 26 - 28** are rejected on the same ground as stated in claims 1 – 4 above.

10. Claims 10, 16, 22 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lewis (US 6,378,066) in view of Zolnowsky (6,779,182).

11. Regarding **claim 10**, Lewis teaches of plurality of scheduling domain (col. 3, line 51 – col. 4, line 7) and a system with a run queue but did not teach that each scheduling domain has a separate run queue. Nevertheless, Zolnowsky discloses a system with a scheduler includes a plurality of runnable queues (fig. 5). Therefore, it would have been obvious to one of an ordinary skill in the art, at the time the invention was made to implement Lewis' system with multiple run queues so that it can enhance the performance with additional run queues supporting multiprocessor system.

12. **Claims 10, 16, 22 and 29** are rejected on the same ground as stated in claim 10 above.

Response to Arguments

13. Applicant's arguments with respect to claims 1, 5, 6, 11, 12, 17, 18, 23 and 24 have been considered but are not persuasive for the reasons set forth below.

14. Applicant argues that Lewis "...does not teach or suggest a method solving the problem of synchronizing two tasks share a same resource, much less teach or suggesting a scheduling domain associated with at least two tasks and a resource shared by the at least two tasks for implicitly synchronization the at least two with respect to the shared resource" (page 11, 3rd paragraph), the examiner disagrees. Lewis discloses that at least one of the scheduling domains being associated with at least two tasks of the set of tasks (col. 3, line 51 – col. 4, line 7: each dependency indicates a relationship between two blocks and requires the portion of the program

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associated with the one of the two blocks to be executed before the portion of the program associated with the other block. Col. 12 lines 15 – 35: dependency is fixed and Fig. 12A) and a resource shared by the at least two tasks (figs. 8, 9, 10A and 10B, col. 5 lines 50 – 55: “...for each block, the developer specifies the program code to be executed on the values within the block as any dependency between the block and other blocks in the region. Blocks with the same program code are said to share the same ‘state’”. Col. 12 lines 24 – 46: a set of blocks 1204 (or state)); and wherein tasks within each of the scheduling domains can be run on different processors but are prohibited from running concurrently even if run on different processors (col. 12 lines 15 – 35 and fig. 12A)

Conclusion

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lilian Vo whose telephone number is 571-272-3774. The examiner can normally be reached on Thursday from 7:30am - 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner’s supervisor, Meng-Ai An can be reached on 571-272-3756. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Any inquiry of a general nature or relating to the status of this application should be directed to the TC 2100 Group receptionist at 571-272-2100.

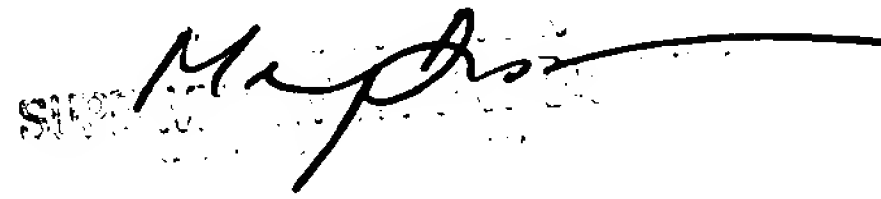
Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

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applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Lilian Vo
Examiner
Art Unit 2195

lv
September 28, 2006

A handwritten signature in black ink, appearing to read 'Lilian Vo', is written over a faint, rectangular, dotted stamp. The signature is fluid and cursive, extending to the right.